SMALL DEPRESSION POND (TYPIC MARSH SUBTYPE)

Concept: Small Depression Ponds are the communities in mainland Coastal Plain small depressions, with permanent flooding or with hydroperiods lasting most of the growing season. The Typic Marsh Subtype covers those with emergent vegetation of various large grasses or sedges but without the characteristics of the Cutgrass Prairie Subtype. This concept differs somewhat from the 3rd Approximation, where the Small Depression Pond type covered all zones in basins that contained permanent or near permanent water in their center. As now defined, Small Depression Pond will often occur in association with one or two drier zonal community types such as Small Depression Drawdown Meadow, Vernal Pool, or Small Depression Shrub Border.

Distinguishing Features: The Small Depression Pond type is distinguished from Small Depression Drawdown Meadow by vegetation and soils characteristic of deeper and more permanent standing water, with a hydroperiod lasting most, if not all, of the growing season. They tend to have soils with at least some muck accumulation. They tend to be dominated either by floating-leaf plants, submersed plants, or by large emergent graminoids, though smaller water-tolerant graminoids may dominate. Small Depression Drawdown Meadows tend to have smaller graminoids and abundant forbs, dominated by species adapted to less permanent water. The Small Depression Pond type is distinguished from Natural Lake Shoreline by occurring in small, shallow depressions, less than 20 acres, where wave action is not significant, and where emergent or floating vegetation is generally able to occur all the way across.

Small Depression Ponds are closely related to Interdune Ponds; they are distinguished by occurring in coastal fringe or inland locations, not on barrier islands, nor in association with maritime communities and salt spray. Upland Pool communities of the Piedmont and Blue Ridge may be closely related, including containing some Coastal Plain flora, but are easily distinguished by their location in those provinces and by their distinctive vegetation.

The Typic Marsh Subtype is distinguished from the Open Lily Pond Subtype by the dominance of emergent plants. It is distinguished from the Cutgrass Prairie Subtype by the absence or scarcity of *Leersia hexandra*.

Synonyms: *Panicum hemitomon - Eleocharis equisetoides - Rhynchospora inundata* Herbaceous Vegetation (CEGL004127). Includes the Boggy Marsh Subtype and Maidencane Subtype of earlier 4th approximation drafts.
Ecological Systems: Southern Atlantic Coastal Plain Depression Pondshore (CES203.262).

Sites: Typic Marsh Subtype communities occur primarily in limesinks but could potentially be found in other kinds of Coastal Plain depressions.

Soils: Soils are sandy, loamy, or clayey mineral soils but generally have a thin layer of muck. Many examples are small enough that they are usually treated as inclusions in upland soil units in soil surveys, while others are mapped as water.

Hydrology: Surface water is shallow to deep, usually 1 to several feet deep. Standing water is present for most or all of the growing season in normal years. When it is not present, the soil remains saturated.

Vegetation: The Typic Marsh Subtype is generally dominated by emergent herbs, mostly grasses and sedges. *Hymenachne hemitomon* is highly constant and can be strongly dominant, sometimes almost to the exclusion of other species. *Eleocharis equisetoides, Rhynchospora inundata*, and *Rhynchospora tracyi* are also frequent and may be abundant. Other fairly frequent species include *Eleocharis elongata*, other *Eleocharis* species, *Rhynchospora harperi, Proserpinaca pectinata, Leersia hexandra*, and *Juncus repens*. Many species shared with Small Depression Drawdown Meadow (Typic Subtype) are often mentioned in site descriptions or found in plots. Some of them include *Centella asiatica, Lachnanthes caroliniana, Polygala cymosa, Eriocaulon compressum, Pluchea baccharis, Rhexia cubensis, Xyris ambigua,* and *Rhynchospora pleiantha*. Species more typical of the Open Lily Pond Subtype may also be present in small numbers, including *Nymphaea odorata* and *Utricularia* spp. Woody species are absence or sparse, but some *Taxodium ascendens*, *Nyssa biflora*, *Ilex myrtifolia,* or other shrubs may be present. The plant species richness of this community generally is lower than that of nearby Small Depression Drawdown Meadows.

Range and Abundance: Ranked G3? The Typic Marsh Subtype is known from the outer and occasionally middle Coastal Plain in the southern half of the state, but they could potentially be found farther north or in the Sandhills. Most examples are in a few clusters from Carteret to Brunswick County. The synonymized association ranges from North Carolina to Georgia and potentially to Florida and Alabama.

Associations and Patterns: Small Depression Pond (Typic Marsh Subtype) usually occurs as a zone in association with other depression communities. The Open Lily Pond Subtype may occur in deeper water in the center of a depression. Small Depression Drawdown Meadow, Vernal Pool, or Small Depression Shrub Border may occur on the shallow outer edge of the basin. The depressions may be isolated but often are clustered, so that multiple patches of this community and several other Coastal Plain Depression Communities occur close by. The surrounding landscape generally is some kind of longleaf pine community.

Variation: The fine-scale spatial heterogeneity and temporal variability in vegetation makes it difficult to distinguish appropriate natural divisions of these communities with plot studies or site descriptions. Some examples are relatively diverse while others appear to consist of little other than *Hymenachne hemitomon*. It is unclear if this is an enduring characteristic or a result of limited survey. These examples often are more isolated and may represent a naturally depauperate variant. Alternatively, they may be a result of alteration.

Eleocharis (elongata, equisetoides) - Rhynchospora tracyi Semipermanently Flooded Herbaceous Vegetation (CEGL004960) is an additional small depression pond association that has been attributed to North Carolina and appears to overlap the concept of this subtype. Nifong (1998) also recognized a depauperate *Panicum hemitomon* association, which was not recognized in NVC. These could potentially represent variants or subtypes but need further investigation of how distinct they are in North Carolina. Nifong (1998) also recognized an *Eleocharis quadrangulata - Rhynchospora inundata - Rhynchospora* sp. 1 / *Sphagnum* Marsh association, which is not

represented in NVC. It needs clarification of its concept and character but may warrant recognition as a distinct subtype.

Dynamics: Small Depression Ponds, including the Typic Marsh Subtype, are expected to be more stable than the drier herbaceous-dominated depression communities. Vegetation may still change in response to unusually wet or dry periods. Because these communities remain wet much of the time, they rarely burn when surrounding areas are ignited. Because of wetness, they are less prone to invasion by uncharacteristic trees such as *Pinus taeda* during drought.

Comments:

Rare species: Vascular plants: *Eleocharis melanocarpa, Eleocharis robbinsii, Myriophyllum laxum, Paspalum dissectum, Rhynchospora harperi, Rhynchospora pleiantha, Rhynchospora scirpoides, Rhyncospora tracyi, Sagittaria chapmanii, Sagittaria isoetiformis,* and *Utricularia olivacea*.

Vertebrate Animals: *Rana capito.*

References:

Nifong, T.D. 1998. An ecosystematic analysis of Carolina bays in the Coastal Plain of North Carolina. Ph.D. Dissertation, University of North Carolina, Chapel Hill.